SAFETY DATA SHEET

LIQUIDOW™ - TECHNICAL GRADE CALCIUM CHLORIDE SOLUTION

MSDS NO.: KC010 **Rev Date: 08-07-2017** **Rev. Num. 01**

1. IDENTIFICATION:

COMPANY NAME:	Knight Chemicals LLC
ADDRESS:	7320 W. Florist Ave Milwaukee, WI 53218
TELEPHONE:	1(800)825-7650
FAX:	1(414)461-0903
EMERGENCY CONTACT:	Call CHEMTREC at 800-424-9300 for 24 hour Emergency Response involving a spill, leak, fire, exposure, or accident.
MANUFACTURER:	Occidental Chemical Corp. – Dallas, TX 75380
PRODUCT NAME / USE:	LIQUIDOW™ - Technical Grade Calcium Chloride Solution USES: Concrete Acceleration, Drilling Fluid Additive, Dust Control, Ice Melting, Refrigeration, Road Base Stabilization and Full Depth Reclamation, Tire Weighting, Water Treatment (Non-potable).

2. HAZARD(S) IDENTIFICATION:

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

EMERGENCY OVERVIEW:

APPEARANCE:	Clear / Transparent Liquid
ODOR:	None / Odorless
REACTIVITY:	None
MAJOR HEALTH HAZRDS:	Causes Serious Eye Irritation. Causes Skin Irritation.
PRECAUTIONARY STATEMENTS:	Wash thoroughly after handling.

GHS CLASSIFICATION:

GHS: CONTACT HAZARD – SKIN:	Category 2 – Causes skin irritation.
GHS: CONTACT HAZARD – EYE:	Category 2A – Causes serious eye irritation.
GHS: ACUTE TOXICITY – INHALATION:	No data available. Not classified
GHS: ACUTE TOXICITY – ORAL:	Not classifies as acutely toxic for oral exposure.
GHS: ACUTE TOXICITY – DERMAL:	Not classified as acutely toxic for dermal exposure.
GHS: CARCINOGENICITY:	Not classified as a carcinogen per GHS criteria. This Product is not classified as a carcinogen by NTP, IARC or OSHA,

UNKNOWN ACUTE TOXICITY:
A percentage of this product consists of ingredient(s) of unknown acute toxicity.

Unknown Acute Dermal Toxicity:
3% of this product consists of ingredient(s) of unknown acute dermal toxicity.

GHS SYMBOL:

GHS SIGNAL WORD: WARNING

GHS HAZARD STATEMENTS:

GHS – HEALTH HAZARD STATEMENT(S)
Causes skin irritation
Causes serious eye irritation

GHS – Precautionary Statement(s) – Prevention
Wear eye and face protection
Wear protective gloves
Wash thoroughly after handling

GHS – Precautionary Statement(s) – Response
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists seek medical attention.
IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash before reuse.
Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)

GHS – Precautionary Statement(s) – Storage
There are no Precautionary Storage phrases assigned

GHS – Precautionary Statement(s) – Disposal
Dispose of contents and container in accordance with applicable local, regional, national and/or international regulations.

Hazards Not Otherwise Classified (HNOC)
None identified

See Section 11: **TOXICOLOGICAL INFORMATION**

3. COMPOSITION / INFORMATION ON INGREDIENTS:

PRODUCT TRADE NAME: LIQUIDOW™
CHEMICAL NAME: Technical Grade Calcium Chloride Solution

CHEMICAL	Wt %	CAS No.	TLV (ACGIH)	PEL (OSHA)
Calcium Chloride	28 - 42	010043-52-4	None Established	
Potassium Chloride	< 3	007447-40-7	None Established	
Water	53 - 72	007732-18-5	None Established	
Sodium Chloride	< 2	007647-14-5	None Established	
Calcium Bromide ($CaBr_2$)	< 1	007789-41-5	None Established	

4. FIRST AID MEASURES

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. If effects occur, consult medical personnel immediately.

SKIN: Wash off in flowing water or shower. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

INGESTION: If swallowed, seek medical advice immediately. Only induce vomiting as directed by medical personnel (Never give anything by mouth or attempt to induce vomiting in an unconscious person.)

INHALATION: Remove to fresh air; if effects occur, administer oxygen if necessary. Consult a physician.

Most Important Symptoms/Effects (Acute or Delayed):

Acute Symptoms/Effects: Listed below.
Inhalation (Breathing): Inhalation mist, spray, or vapor may cause irritation to upper respiratory tract (nose and throat). Nasal mucosal and oropharyngeal eythema.
Skin: Skin Irritation. Skin exposure may cause slight irritation, redness, itching, swelling. May cause more severe response if skin is damp, abraded (scratched or cut), or covered by clothing, gloves, or footware. Prolonged contact may cause more severe symptoms. Damage is localized to contact areas.
Eye: Eye irritation. Eye exposure may cause serious eye irritation and pain. May cause conjunctival Swelling and cornea opacification from hypertonic solution. Corneal eye pain, redness, acute corneal thickening or whitening.
Ingestion (Swallowing): Consumption of solids or hypertonic solutions causes nausea, vomiting, and increased thirst.

NOTES TO PHYSICIAN: Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal / esophageal control if lavage is done. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES:

FIRE & EXPLOSION HAZARD: This material does not burn.

EXTINGUISING MEDIA: This material does not burn. If exposed to fire from another source, use suitable extinguishing agent for that fire.

FIRE FIGHTING PROCEDURES: Keep people away. Isolate fire and deny unnecessary entry. This material does not burn. Fight fire for other material that is burning. Water should be applied in large quantities as a fine spray.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS: Wear NIOSH approved positive-pressure, self-containing breathing apparatus (SCBA) operated in pressure demand mode. Wear protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-containing breathing apparatus and fight fire from a remote location.

Lower Flammability Level (air): Not Applicable
Upper Flammability Level (air): Not Applicable
Flash Point: Not Applicable
Auto-Ignition Temperature: Not Applicable

6. ACCIDENTAL RELEASE MEASURES:

OCCUPATIONAL RELEASE: Small and large spills: Contain spilled material if possible. Collect in suitable and properly labeled containers. Flush residue with plenty of water. See Section 13, Disposal Considerations, for additional information. Absorb with materials such as sand.

PERSONAL PRECAUTIONS: Spilled material may cause a slipping hazard. Isolate area. Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling, for additional precautionary measures.

7. HANDLING & STORAGE

Comply with federal, state, and local laws, regulations and procedures when storing this product. Store in a tightly closed container. Store away from incompatible materials. Do not store in attic, upper floors or any area where leaking of contents could cause damage.

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep container tightly closed. Protect from atmospheric moisture. Product shipped/handled hot can cause thermal burns. Avoid eye and prolonged skin contact. Wash thoroughly after handling.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

EXPOSURE GUIDELINES:

OSHA Final PEL TWA: TWA 15 mg/m^3 (total), TWA 5 mg/m^3 (resp)

ACGIH TWA: TWA 10 mg/m^3 (inhalable), TWA 3 mg/m^3 (resp)

ENGINEERING CONTROLS: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY PROTECTION: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. In dusty or misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: High efficiency particulate air (HEPA) N95. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

SKIN & BODY PROTECTION: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

EYE PROTECTION: Wear chemical safety goggles.

HAND PROTECTION: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene, Polyvinyl Chloride ("PVC" or "Vinyl"), Nitrile/Butadiene Rubber ("Nitrile" or "NBR").

9. PHYSICAL & CHEMICAL PROPERTIES:

MELTING POINT:	Not Applicable
BOILING POINT:	110° - 122° C (230° - 252° F) Literature
VAPOR PRESSURE:	9 - 15 mmHg @ 25° C Literature
VAPOR DENSITY:	Same as water
SOLUBILITY IN WATER:	Completely miscible with water
SPECIFIC GRAVITY:	1.275 – 1.439 Literature
APPEARANCE:	Clear / Transparent Liquid
ODOR:	Odorless
FLASH POINT:	Not Applicable
METHOD USED:	Setaflash Closed Cup
FLAMMABLE LIMITS:	
LFL	N/A
UFL	N/A
VISCOSITY:	2.6 cSt @ 25° C Estimated

10. STABILITY & REACTIVITY:

CHEMICAL STABILITY: Stable at normal temperatures and pressures.

CONDITIONS TO AVOID: None known.

INCOMPATIBILITY: Avoid contact with: bromide trifluoride, 2-furan percarboxylic acid because calcium chloride is incompatible with those substances. Contact with zinc forms flammable hydrogen gas, which can be explosive. Catalyzes exothermic polymerization of methyl vinyl ether. May release flammable hydrogen gas. Reaction of bromide impurity with oxidizing materials may generate trace levels of impurities such as bromates.

HAZARDOUS DECOMPOSITION PRODUCTS: Does not decompose

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION:

TOXICITY DATA:

PRODUCT TOXICITY DATA: LiquiDow – Technical Grade Calcium Chloride Solution
LD50 ORAL: 2282 mg/kg – Oral Acute Toxicity Estimate (ATE)
LD50 DERMAL: 6013 mg/kg – Dermal Acute Toxicity Estimate (ATE)
LD50 INHALATION: No data is available

COMPONENT TOXICITY DATA:

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Calcium Chloride	1000 mg/kg (Rat)	2630 mg/kg (Rat)	
Potassium Chloride	2600 mg/kg (Rat)		
Sodium Chloride	3 g/kg (Rat)	10 g/kg (Rabbit)	42 g/m³ (1-Hr Rat)

SIGNS AND SYMPTOM OF EXPOSURE:
Solution and or solids may be visible on the skin and or eyes. Localized redness, warmth, and irritation consistent with mechanism of injury: abrasion, burn, hypertonic solution.

GHS HEALTH HAZARDS:

GHS: ACUTE TOXICITY – ORAL: Not classified as acutely toxic for oral exposure.
GHS: ACUTE TOXICITY – DERMAL: Not classified as acutely toxic for dermal exposure.
GHS: ACUTE TOXICITY – INHALATION: No data available. Not Classified.
GHS: CONTACT HAZARD – SKIN: Category 2 – Causes skin irritation.
GHS: CONTACT HAZARD – EYE: Category 2A – Causes serious eye irritation.
GHS: CARCINOGENICITY: Not classified as a carcinogen per GHS criteria.

MUTAGENIC DATA: Not classified as a mutagen per GHS criteria.

DEVELOPMENTAL TOXICITY: Not classified as a developmental or reproductive toxin per GHS criteria. For the major component(s): Did not cause birth defects or any other fetal effects in laboratory animals.

12. ECOLOGICAL INFORMATION:

ECOTOXICITY DATA:

AQUATIC TOXICITY: Material is practically non-toxic to aquatic organisms on an acute basis

FRESHWATER FISH TOXICITY:
Calcium Chloride: LC50, bluegill (Lepomis macrochirus): 8,350 – 10,650 mg/l
Potassium Chloride: LC50, rainbow trout (Oncorhynchus mykiss), 96 h: 4,236 mg/l
Sodium Chloride: LC50, fathead minnow (Pimephales promelas): 10.610 mg/l

INVERTEBRATE TOXICITY:
Calcium Chloride: LC50, water flea (Daphnia magna): 759 – 3,005 mg/l
Potassium Chloride: EC50, water flea (Daphnia magna): 24 h, immobilization: 590 mg/l
Sodium Chloride: LC50, water flea (Daphnia magna): 4,571 mg/l

MICROORGANISM TOXICITY:

Sodium Chloride: IC50, OECD 209 Test; activated sludge, respiration inhibition: > 1000 mg/l

FATE & TRANSPORT:

BIODEGRADATION: Biodegradation is not applicable.

BIOCONCENTRATION: No bioconcentration is expected because of the relatively high water solubility. Potential for mobility in soil is very high (Koc between 0 and 50). Partitioning from water to n-octanol is not applicable.

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Reuse or recycle if possible. All disposal practices must be in compliance with all Federal, State/Provincial and Local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

For UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Reclaimer or Waste water treatment system.

14. TRANSPORT INFORMATION:

U.S. DOT 49 CFR 172.101: Not Regulated

CANADIAN TRANSPORTATION OF DANGEROUS GOODS: Not Regulated

The Transportation of Dangerous Goods Act (T.D.G.A.) classification for this product is: Not Regulated

15. REGULATORY INFORMATION:

U.S. REGULATIONS:

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) (US)

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.21): Acute Health Hazard

EPCRA SECTION 313 (40 CFR 372.65): To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statue.

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119): Not regulated.

CALIFORNIA PROPOSITION 65: This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

CANADIAN REGULATIONS: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

WHMIS CLASSIFICATION: D2B

16. OTHER INFORMATION:

NFPA Hazard Rating (NFPA): (Scale 0-4)
HEALTH: **1** FLAMMABILITY: **0** REACTIVITY: **0**

HMIS Hazard Rating (HMIS): (Scale 0-4)
HEALTH: **2** FLAMMABILITY: **0** REACTIVITY: **0**

Information contained on these sheets needs to be made available to your workers according to the OSHA Hazard Communication Standard 29CFR 1910.1200 and the Workplace Hazardous Materials Information System (WHMIS).

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